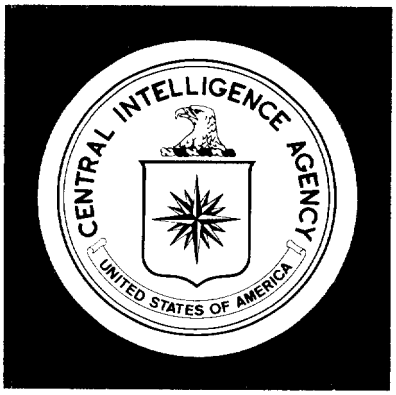

Prospects For Soviet Winter Grain

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Environment Analysis Brief

Prospects for Soviet Winter Grain

Significant winterkill has occurred in the southeastern part of the winter grain region of the USSR. Despite a recent improvement in overall soil moisture conditions in the entire region, the combination of winterkill and low autumn soil moisture makes prospects poor for an above-average crop.

An estimated 20- to 40-percent winterkill has occurred in the Volga-Don area.* (See map.) This area normally produces about 3 million tons of winter wheat. Cumulative winterkill damage through mid-February in adjacent areas was in the 5- to 20-percent range. The national average is 16 percent. Considerable additional damage from winterkill can occur during March.

The severe drought that drastically reduced the 1975 grain harvest resulted in poor fall seeding conditions in many of the winter grain regions. Those hardest hit were the southern Ukraine, Belorussia, eastern Central Black Earth, the southern Volga Valley, and much of the Transcaucasus. Marginal soil moisture caused spotty germination and poor plant development, and in some areas no grain could be sown. Many plants in these dry areas did not build up a carbohydrate reserve adequate to withstand the rigors of winter.

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* *Criteria used were a minimum temperature of -20 C with 3 cm or less of snow cover.*

STATINTL

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Winter grains in the Soviet Union average (1970-74) about 23 percent of the sown grain area and account for about 30 percent of total grain production. In the autumn of 1975, 37.5 million hectares are reported to have been sown to winter grains, the largest area since 1969 and slightly more than the original plan.

Most winter grains are grown west of the Volga River and south of 60° latitude. This area usually has ample soil moisture and snow cover throughout the winter that protects the winter crop and supplies additional soil moisture. Areas to the north and east of the Volga have winters too severe for winter grains to survive.

The major winter grains are wheat, rye, and barley. The wheat and rye are used primarily as food grains and the barley as animal feed. Winter wheat accounts for approximately 65 percent of the total winter grain area, rye for 30, and barley for 5 percent.

The successful wintering of grain crops depends on the autumn development of the plants. Winterkill may be increased by plant sparseness and underdevelopment. Damage to individual plants can be caused by the dehydrating effect of low temperatures on plant tissue or by mechanical damage by ice crystals in the intercellular spaces. Flooding, frost heaving, snow mold, smothering, and ice crusts also result in significant winterkill. Areas that experience greater than 50 percent winterkill are usually resown and areas with less than 50 percent winterkill are overseeded with spring grain.

The soil moisture in the spring grain areas has improved since the unusually dry summer and fall. However, additional moisture is needed, especially in the Volga Valley, to create favorable sowing conditions in the spring.

Weather Summary: November was a dry month throughout most of the Soviet Union, as the drought which began in the spring of 1975 continued. Much of the area west of the Urals received less than half of the normal precipitation. December was also a dry month but not as dry as November. Dry conditions (50 to 100 percent of mean precipitation) continued south of a line from Riga through Minsk, Orel, and Kiyev to Volgograd; north of that line, precipitation was above normal. In January

precipitation and temperature were above normal for all regions. The precipitation was in the form of snow, which provided increased protection to the winter grain crops. The first week in February was cooler and drier than the last 10 days of January. A cold wave with sub-zero temperatures invaded the Ukraine, lower Volga Valley, and Transcaucasus in mid-February, causing significant winterkill.

Estimated Winterkill Thru Mid-February